

What is claimed is:

1. A bi-directional multi-point to point communication system, comprising:
a hybrid fiber/coax distribution network having an optical fiber portion and a
coaxial cable portion;

5 a head end terminal for downstream transmission of downstream control data
and downstream telephony information in a first frequency bandwidth over the
hybrid fiber/coax distribution network and for receipt of upstream telephony
information and upstream control data in a second frequency bandwidth over the
hybrid fiber/coax distribution network, the head end terminal including:

10 head end multicarrier modem means for modulating at least
downstream telephony information on a plurality of orthogonal carriers in the
first frequency bandwidth and for demodulating at least upstream telephony
information modulated on a plurality of orthogonal carriers in the second
frequency bandwidth;

15 head end controller means operatively connected to the head
end multicarrier modem means for controlling transmission of the
downstream telephony information and downstream control data and for
controlling receipt of the upstream control data and upstream telephony
information;

20 at least one service unit, each associated with at least one remote unit and
operatively connected to the hybrid fiber/coax distribution network for upstream
transmission of upstream telephony information and upstream control data in the
second frequency bandwidth and for receipt of the downstream control data and
downstream telephony information in the first frequency bandwidth, each service
25 unit including:

service unit multicarrier modem means for modulating at least
the upstream telephony information on at least one carrier orthogonal at the
head end terminal to at least one other carrier of the second frequency
bandwidth and for demodulating at least the downstream telephony

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information modulated on at least a band of a plurality of orthogonal carriers
in the first frequency bandwidth;

service unit controller means operatively connected to the
service unit multicarrier modem means for controlling the modulation of and
demodulation performed by the service unit multicarrier modem means.

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